

Notice of Allowability

Application No.

10/727,884

Applicant(s)

CHRISTENSEN ET AL.

Examiner

John H. Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendment filed 12/27/2004.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 04 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Response to Amendment

1. Applicant's amendment filed 12/27/2004 has been entered and carefully considered.

Claim 1 has been amended.

Reasons for Allowance

2. Claims 1-20 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, none of the prior art of record teaches or suggests the combination of a method for operating a proximity sensor, wherein the method comprising step of: deriving a function that specifies deviation of performance of the proximity sensor from the performance reference; providing a threshold value for the parameter; thereafter, operating the proximity sensor to produce the sensor signal which indicates whether the object is proximate to the proximity sensor; employing the function to normalize the sensor signal produced by operating the proximity sensor to produce a normalized signal; and comparing the normalized signal to the threshold value to determine whether an object is present. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 10, none of the prior art of record teaches or suggests the combination of a method for operating a proximity sensor, wherein the method

comprising: characterizing performance of the proximity sensor to develop sensor data defining a relationship between a numerical value produced from the sensor signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; thereafter, operating the proximity sensor to produce a given numerical value; employing the function to normalize the given numerical value, thereby producing a normalized value; and determining, in response to the normalized value, whether an object is present. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 16, none of the prior art of record teaches or suggests the combination of a method for operating a proximity sensor, wherein the method comprising: characterizing performance of the proximity sensor to develop sensor data defining a relationship between a count of cycles of a signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; specifying a reference distance value; employing the reference performance data and the reference distance value to define a threshold count value; thereafter, applying a stimulation pulse to a resonant circuit of the proximity sensor to generate an oscillating signal; counting cycles of the oscillating signal which exceed a predefined signal level, thereby producing a signal count; determining whether an object is present wherein such determination employs the function, the signal count and the threshold count value. It is these limitations as

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they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

U.S. Patent No. 6,650,111 discloses a proximity sensor has a transducer coil that is part of an oscillator circuit. The oscillating signal varies as a function of the presence or absence of a metallic object adjacent the transducer coil. By analyzing selected characteristics of that oscillating signal, the presence of and object and the distance to the object can be determined. '111 fails to specify deriving a function that specifies deviation of performance of the proximity sensor from the performance reference; providing a threshold value for the parameter; thereafter, operating the proximity sensor to produce the sensor signal which indicates whether the object is proximate to the proximity sensor; employing the function to normalize the sensor signal produced by operating the proximity sensor to produce a normalized signal; and comparing the normalized signal to the threshold value to determine whether an object is present, as now recited in the amended claim 1 of the present invention. '111 also fails to specify characterizing performance of the proximity sensor to develop sensor data defining a relationship between a numerical value produced from the sensor signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; thereafter, operating the proximity sensor to produce a given numerical value; employing the function to normalize the given numerical value, thereby producing a normalized value; and determining, in response to the normalized value, whether an object is present, as now

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recited in the amended claim 10 of the present invention. '111 also fails to specify characterizing performance of the proximity sensor to develop sensor data defining a relationship between a count of cycles of a signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; specifying a reference distance value; employing the reference performance data and the reference distance value to define a threshold count value; thereafter, applying a stimulation pulse to a resonant circuit of the proximity sensor to generate an oscillating signal; counting cycles of the oscillating signal which exceed a predefined signal level, thereby producing a signal count; determining whether an object is present wherein such determination employs the function, the signal count and the threshold count value, as now recited in the amended claim 16 of the present invention.

U.S. Patent No. 6,348,862 discloses a proximity sensor for sensing an electric-field-influencing media within a region of space, comprising a first electrode, at least one second electrode, a first oscillatory signal operatively connected to the first electrode, at least one second oscillatory signal operatively connected to the at least one second electrode, and a circuit operatively connected to the first electrode for sensing a third signal from the first electrode and for generating a measure of the proximity of the electric-field-influencing media to the first electrode. '862 disclose step of employing the function to normalize the sensor signal produced by operating the proximity sensor to produce a normalized signal. '862 fails to specify deriving a function that specifies deviation of performance of the proximity sensor from the performance reference;

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providing a threshold value for the parameter; thereafter, operating the proximity sensor to produce the sensor signal which indicates whether the object is proximate to the proximity sensor; and comparing the normalized signal to the threshold value to determine whether an object is present, as now recited in the amended claim 1 of the present invention. '862 also fails to specify characterizing performance of the proximity sensor to develop sensor data defining a relationship between a numerical value produced from the sensor signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; thereafter, operating the proximity sensor to produce a given numerical value; employing the function to normalize the given numerical value, thereby producing a normalized value; and determining, in response to the normalized value, whether an object is present, as now recited in the amended claim 10 of the present invention. '862 also fails to specify characterizing performance of the proximity sensor to develop sensor data defining a relationship between a count of cycles of a signal of the proximity sensor and distance to an object to be detected; deriving a function that specifies deviation of the sensor data from the reference performance data; specifying a reference distance value; employing the reference performance data and the reference distance value to define a threshold count value; thereafter, applying a stimulation pulse to a resonant circuit of the proximity sensor to generate an oscillating signal; counting cycles of the oscillating signal which exceed a predefined signal level, thereby producing a signal count; determining whether an object is present

wherein such determination employs the function, the signal count and the threshold count value, as now recited in the amended claim 16 of the present invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

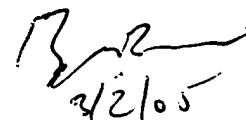
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le
Patent Examiner-Group 2863
February 27, 2005

**BRYAN BUI
PRIMARY EXAMINER**



Handwritten signature of Bryan Bui, dated 2/2/05.